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HYPOSPADIAS

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Plastics Fellowship Training

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Definition

- Hypoplasia of tissues forming ventral radius of penis
 - Abnormal ventral position of urethral meatus
 - Ventral curvature penis or chordee
 - Deficient ventral prepuce with dorsal preputial hood

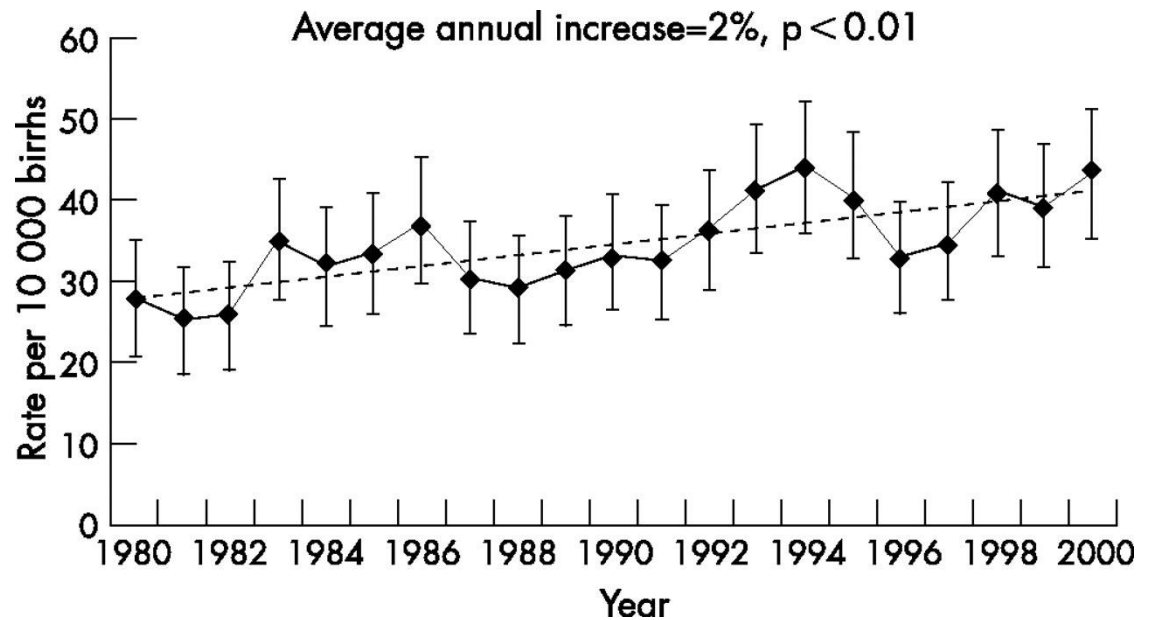






Prevalence WA

- 1 in 231 births overall prevalence
- 1 in 118 male births
- 84% distal hypospadias



Etiology

- Genetic
 - Family History
 - 7% with hypospadias will have child with hypospadias
 - 14% risk of hypospadias for sibling of index case
- Androgen deficiency
 - DHT
 - Androgen receptor anomalies
- Environmental pollutants
- Endocrine disruptors
- 'Testicular dysgenesis syndrome'
 - Skakkaebeck et al

Classification

Smith 1938	Schaefer 1950	Avellan 1975		Browne 1938	Duckett 1996	Hadidi 2004	
1st degree	Glanular	Glanular		Glanular	Anterior Glanular Sub-coronal	Glanular	
				Sub-coronal		Distal penile	
2nd degree	Penile	Penile		Mid shaft	Mid shaft	Middle	
				Proximal penile	Proximal penile		
3rd degree	Perineal	Penoperineal		Penoscrotal	Penoscrotal	Posterior Penoscrotal Scrotal Perineal	Proximal
		Perineal		Midscrotal	Scrotal		
		Perineal w/o Bulb	Perineal	Perineal			

**1. Site of urethral meatus
(before chordee correction)**

Glanular
Hypospadias



Distal Penile
Hypospadias



Proximal
Hypospadias



**2. Site of urethral meatus
(after chordee correction)**

Glanular
Hypospadias



Distal Penile
Hypospadias



Proximal
Hypospadias



3. Prepuce

Complete



Incomplete



4. Glans

Cleft



Incomplete
cleft



Flat



5. Chordee

No chordee



Superficial
chordee



Deep chordee



6. Urethral plate width



7. Penile torsion



8. Scrotal transposition



Glanular



Coronal



Midshaft



Penoscrotal



Scrotal



Perineal





Megameatus Intact Prepuce



Beware hypospadias with impalpable testes: Disorder of Sex Development



Management Principles - Address:

- **Function**

- Micturition

- Pee standing
- Straight urinary stream
- Adequate sized urethra

- Coital – Straight erection, no chordee

- **Form**

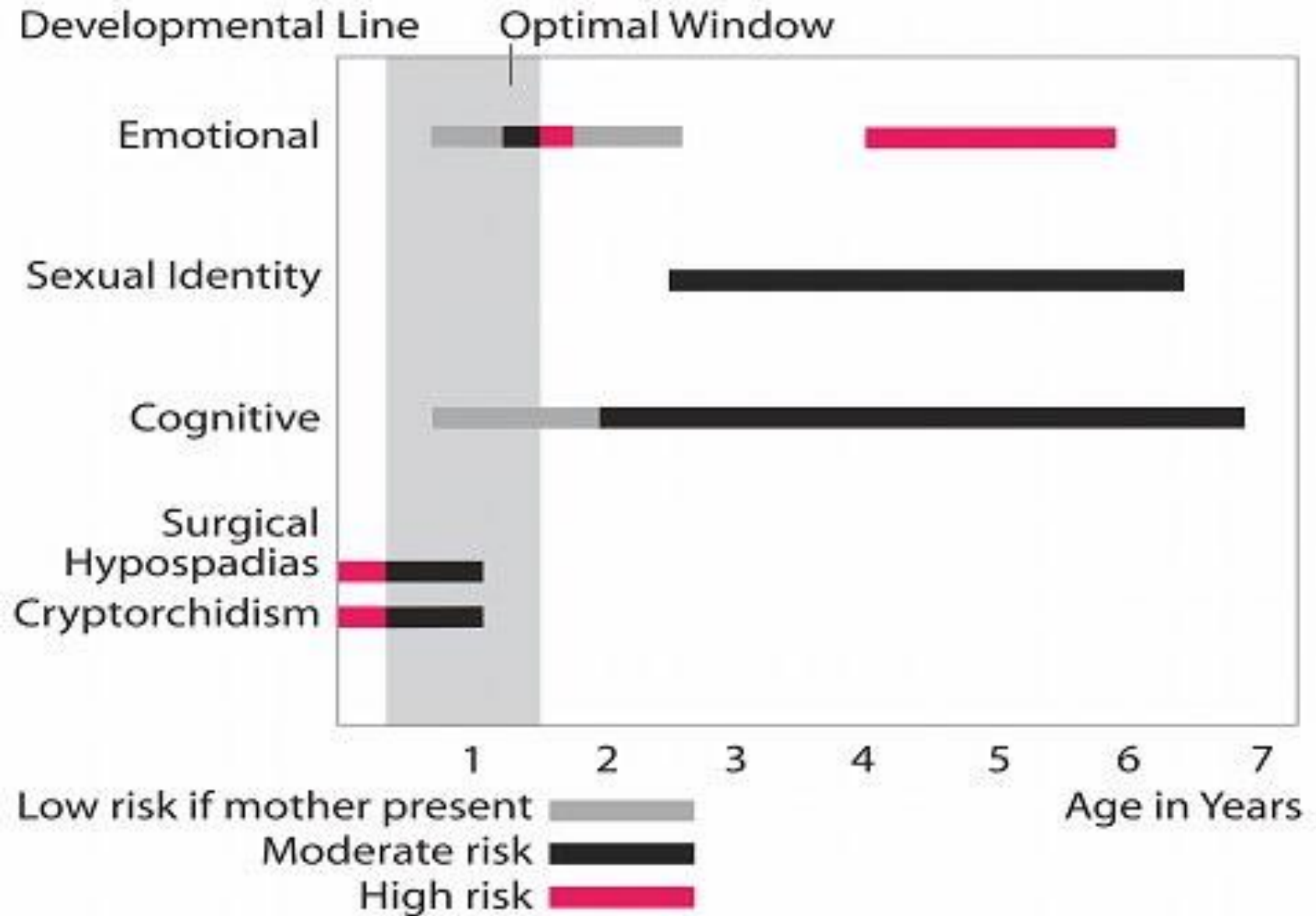
- Cosmesis, aesthetics

- **Psychosocial**

- Self esteem, relationships



Timing of repair



Aims of surgery

- Honest, realistic expectations
- Correct chordee
- Adequate neo-urethra
- Glanular slit-like meatus
- Good cosmesis
- Minimal scarring and complications

Surgery

- 3 Main Components:
 - Correct Chordee
 - Tubularise existing urethral plate or replace missing urethra to form adequate channel
 - Reconstruct ventral radius of penis

Principles of surgery

- Tissue handling – avoid crush injury
- Vascularity – avoid ischaemia
- No tension at suture lines
- Good calibre urethra
- Haemostasis – avoid haematomas

Principles of surgery

- Magnification
- Avoid overlying suture-lines
- Vascularised layer between urethroplasty and skin
- Avoid infection
- Fine suture material

Principles of surgery

- With or without tourniquet
- Stent or no stent
- Suprapubic diversion (proximal hypospadias)
- Preputial reconstruction or not

Surgery

- Hundreds of described procedures
- No two cases are alike; reconstruction should address the various components affecting each case of hypospadias

Surgery

- Single staged repair
 - Most distal hypospadias
 - Wait 6 months if need re-do surgery
- Multi staged repair
 - Most proximal hypospadias
 - Wait 6 months between stages

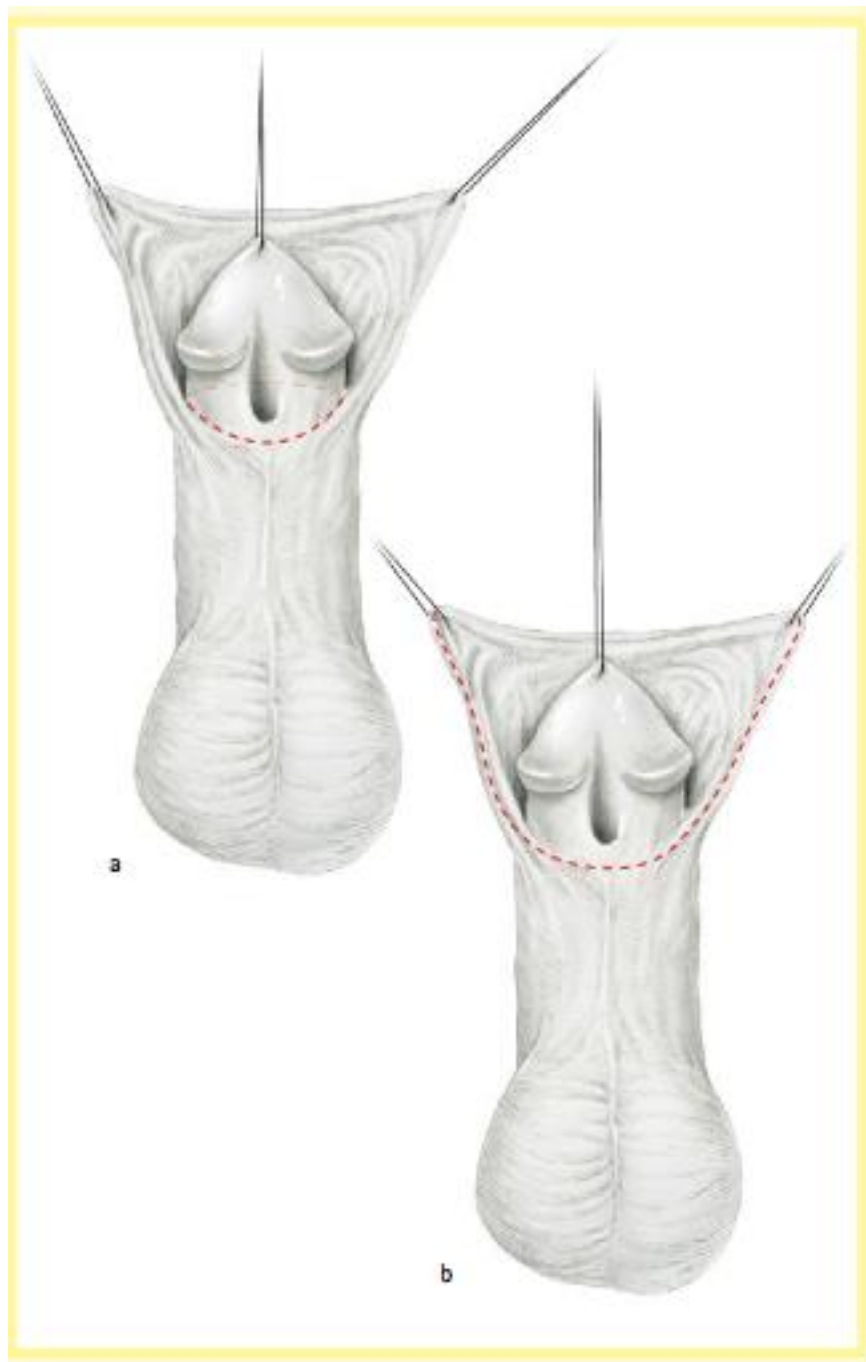
Surgery

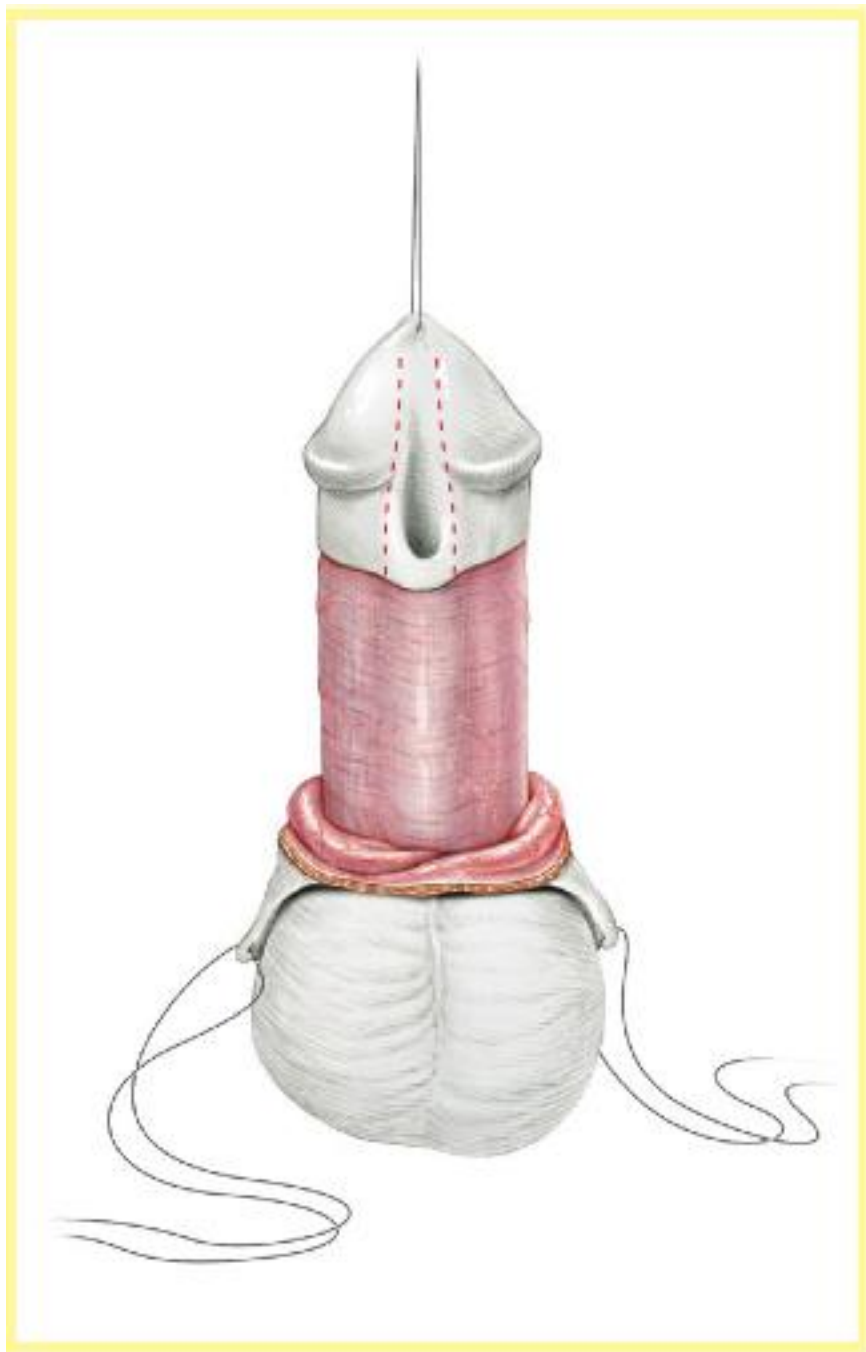
- Ideally, use native urethral plate
 - Thirsch-Duplay, **Snodgrass**
- Local proximal based flip-flap
 - Mathieu
- Preputial onlay island flap
 - Duckett

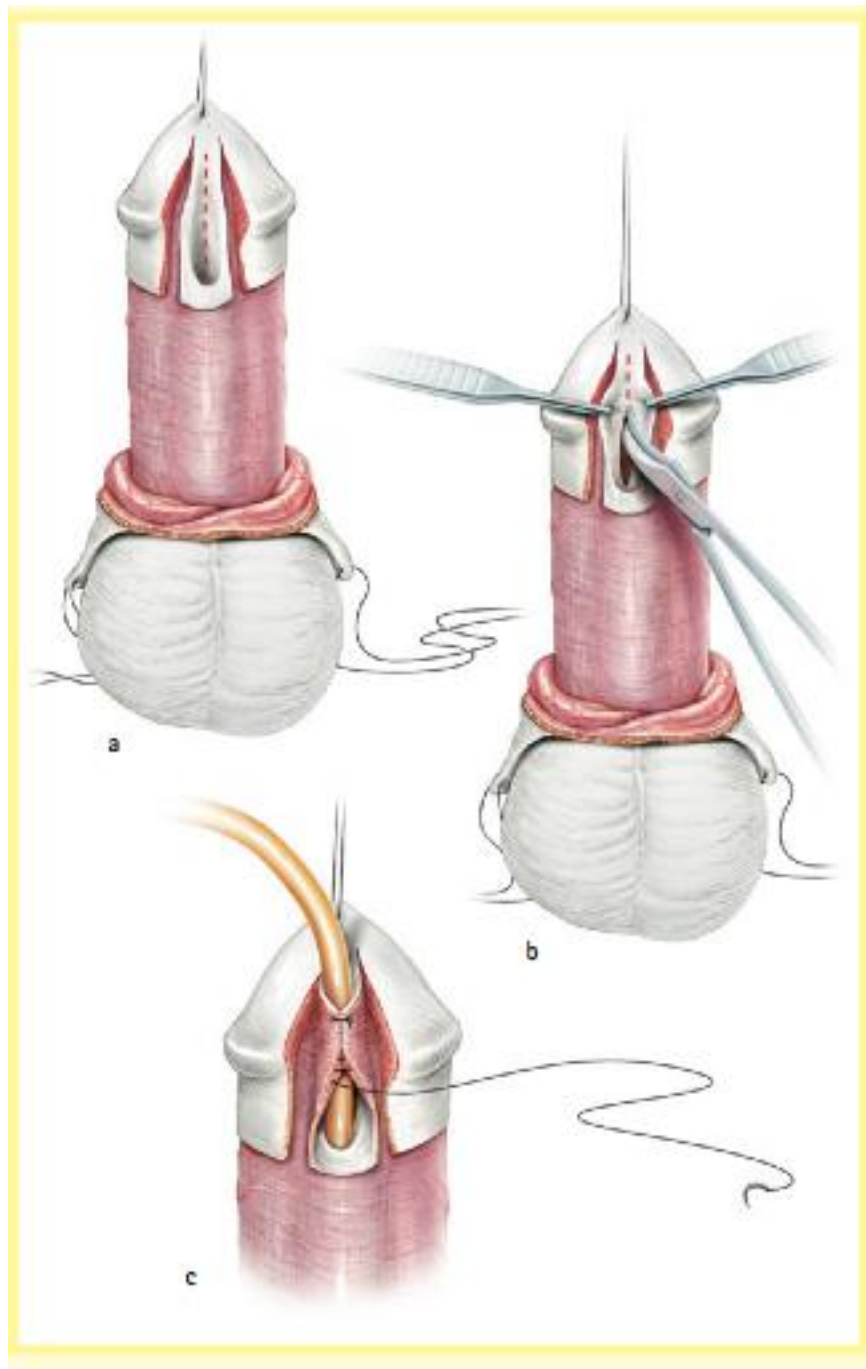
Surgery

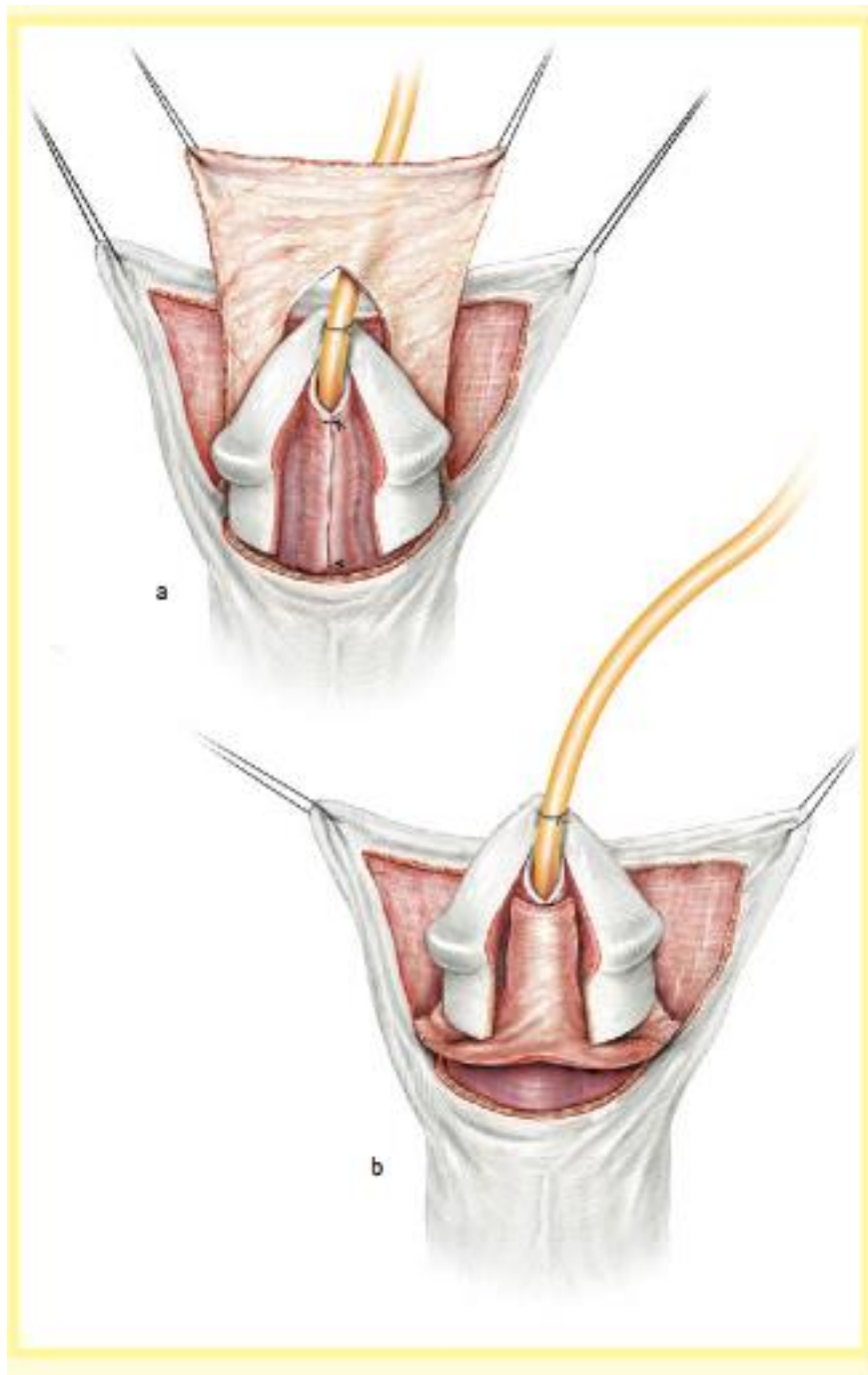
- Pedicled full tube urethroplasty
 - Asopa-Duckett
- Free mucosal or skin grafts
 - Bracka
 - (preputial, vesical, buccal, post-auricular)

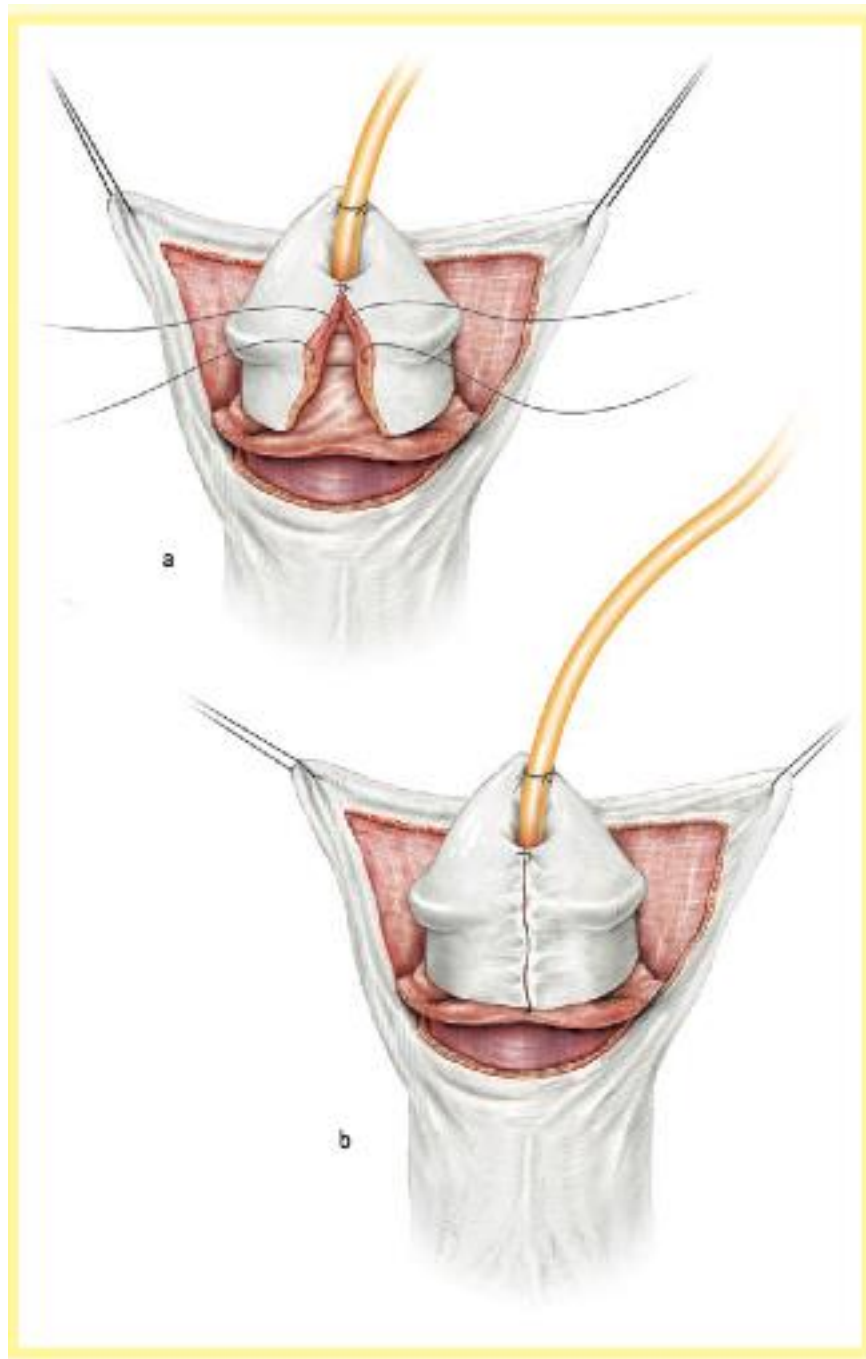


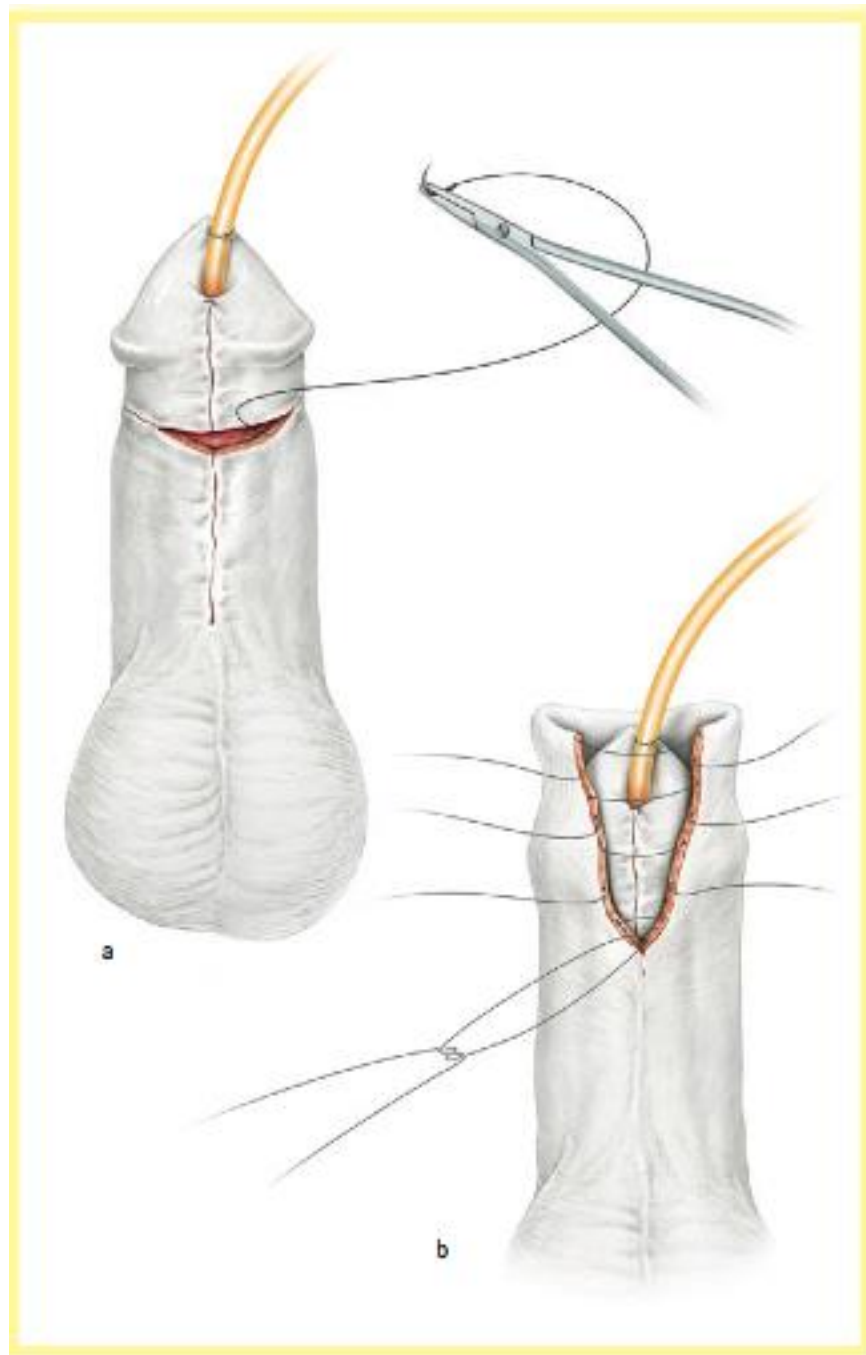


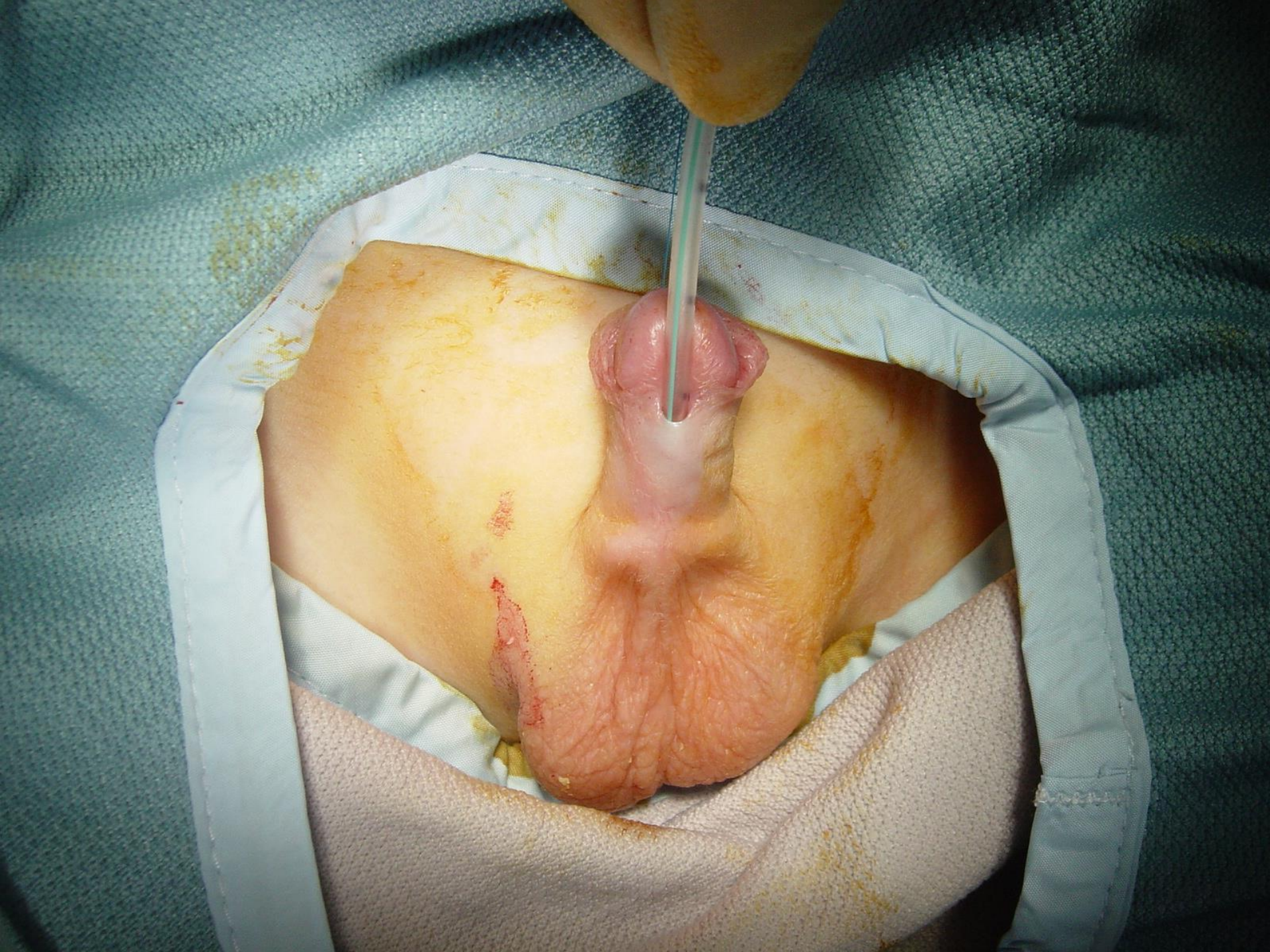


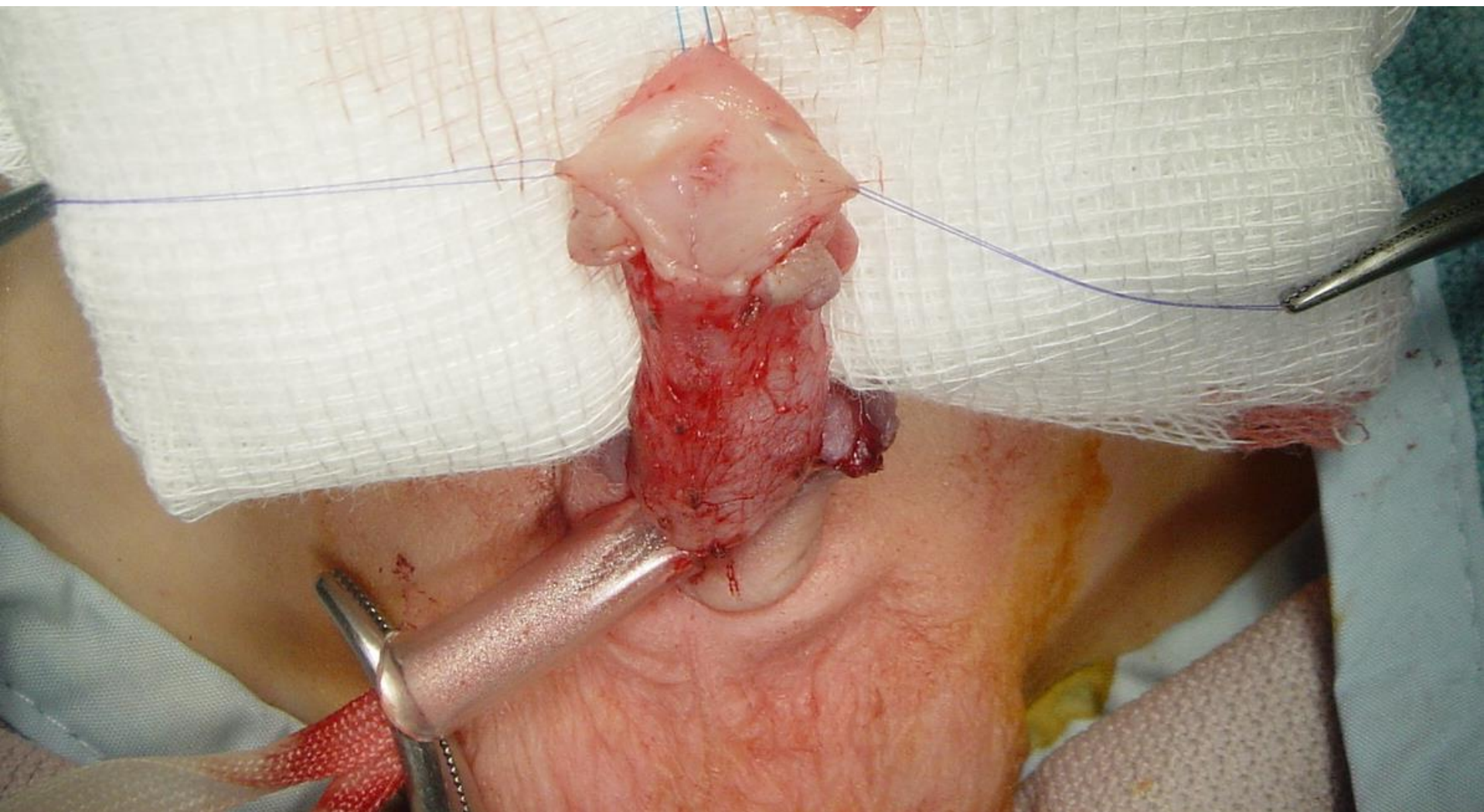


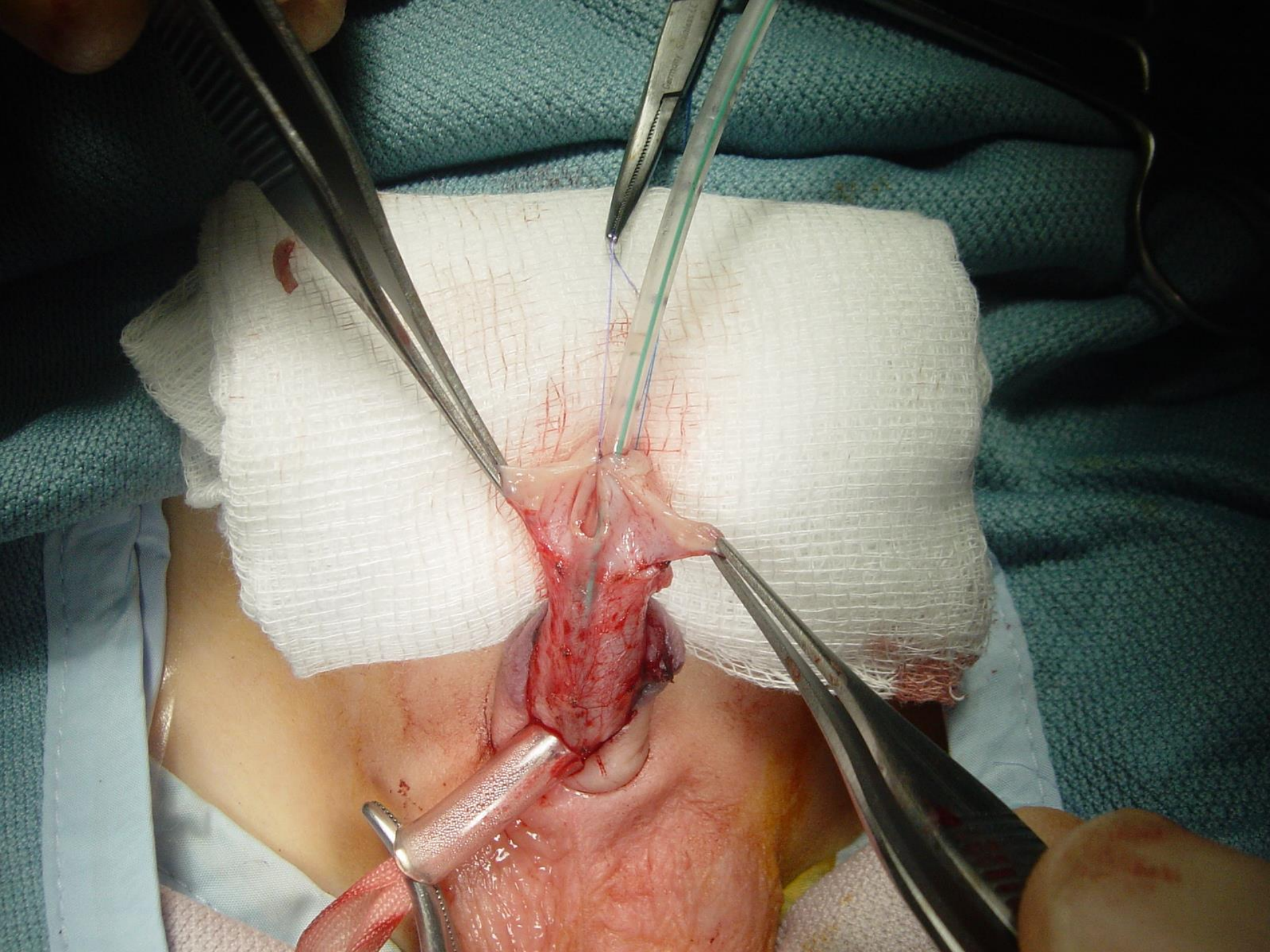


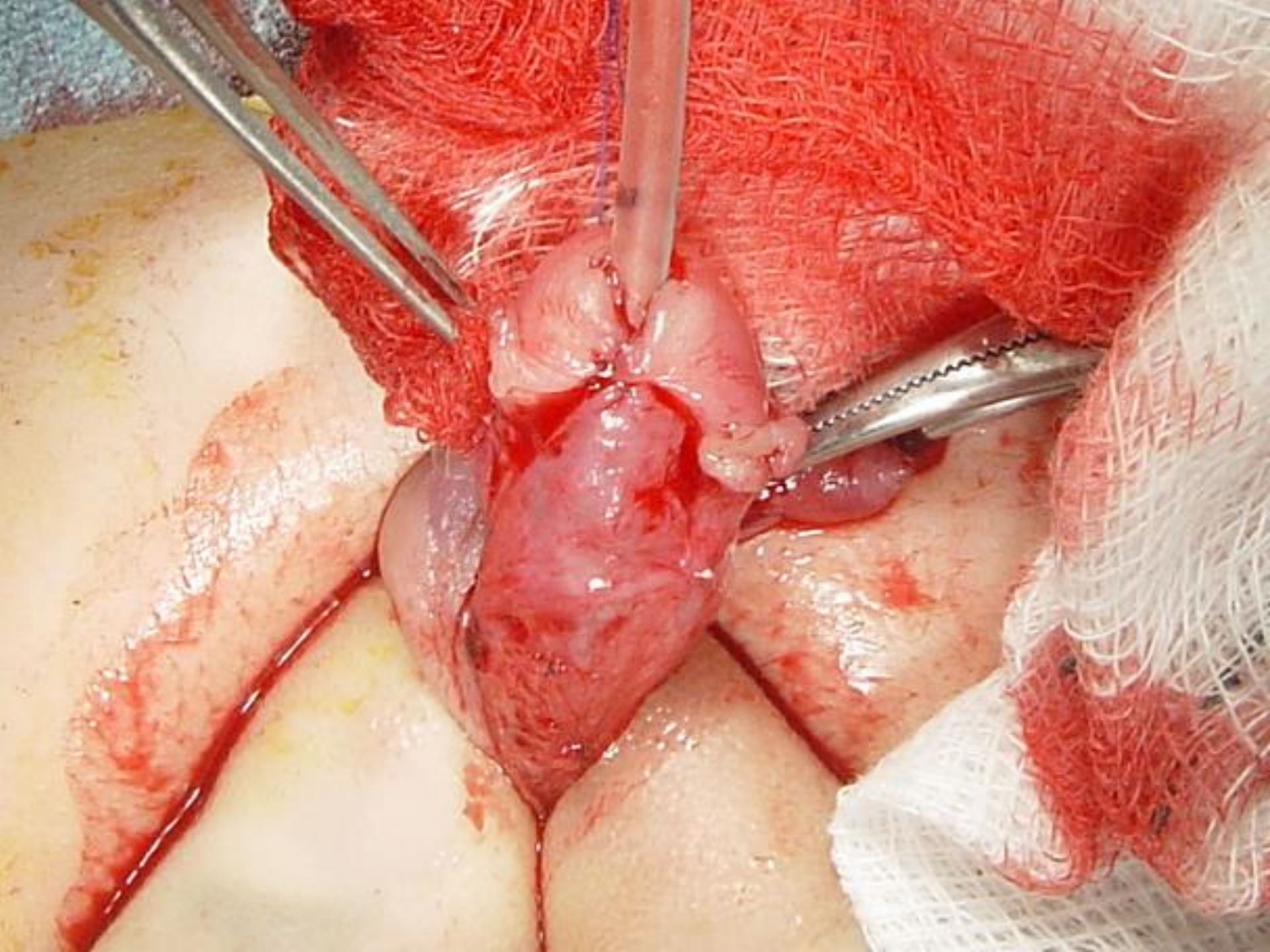








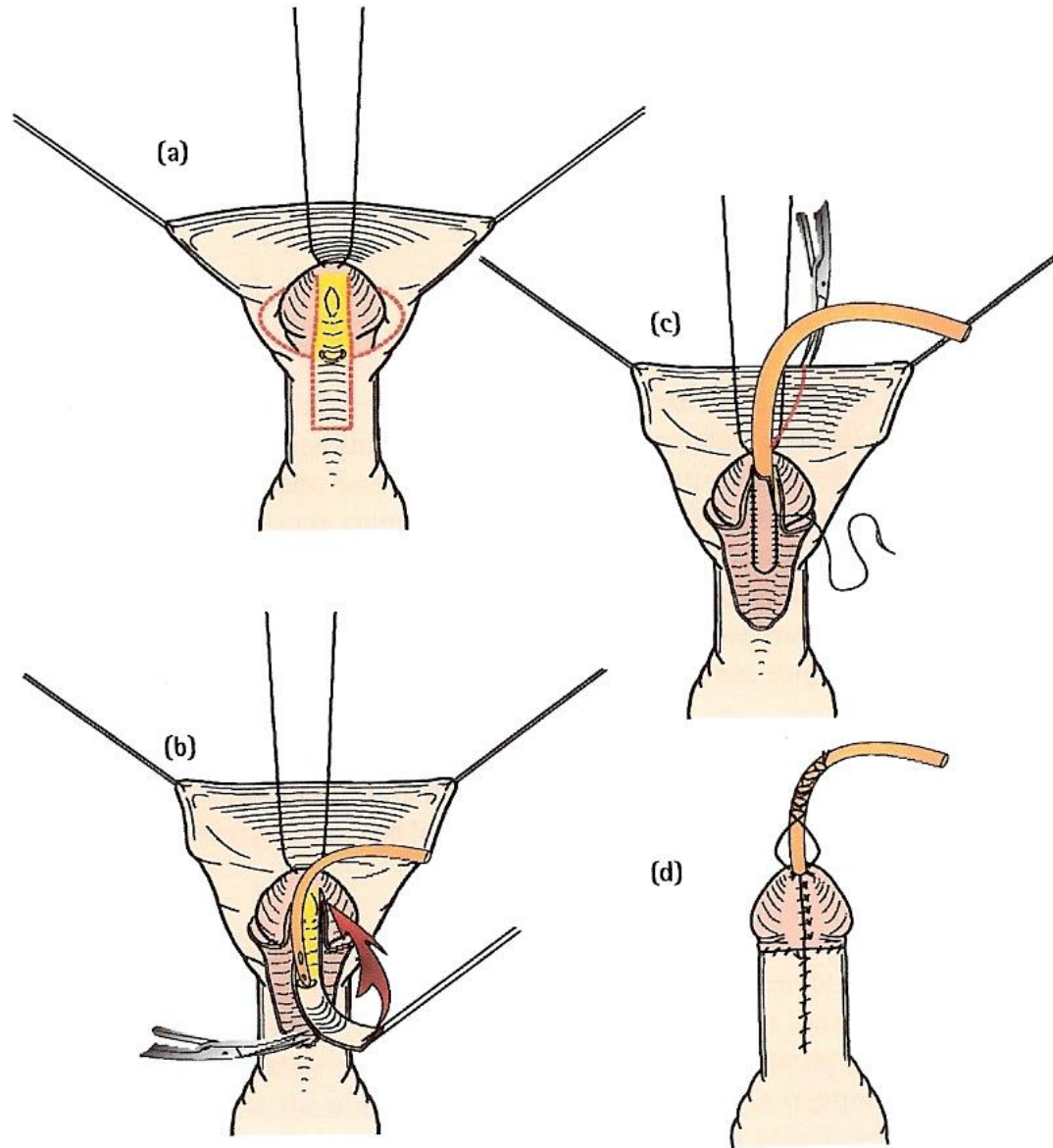






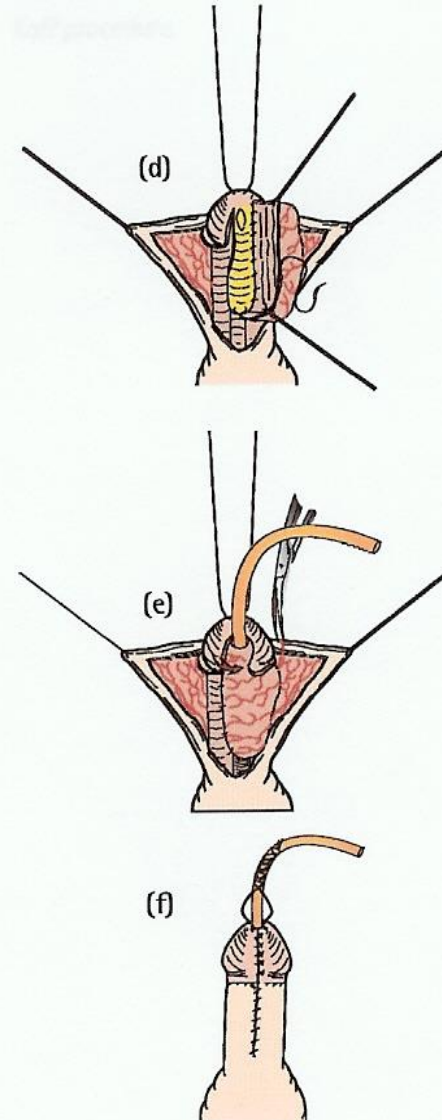
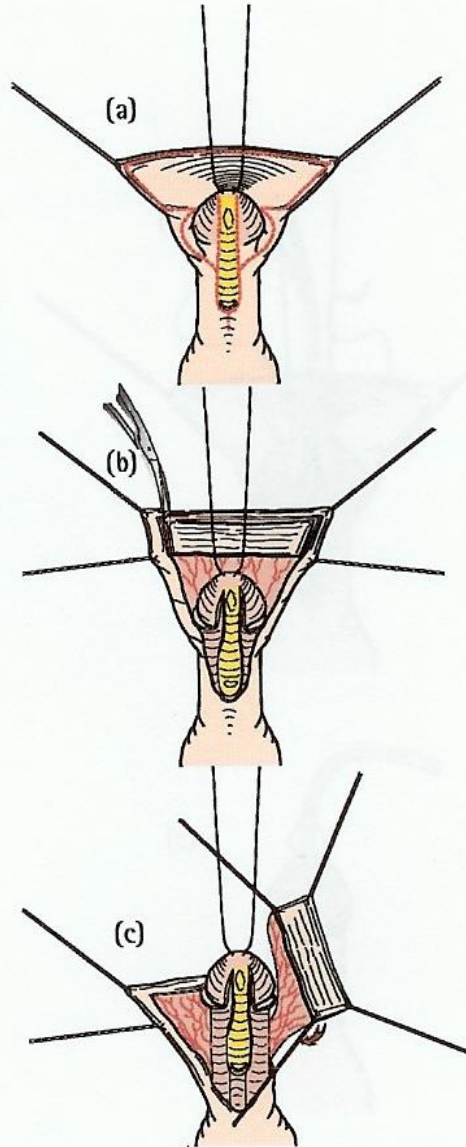
Mathieu Flip Flap

FIG. 10.
Mathieu procedure.



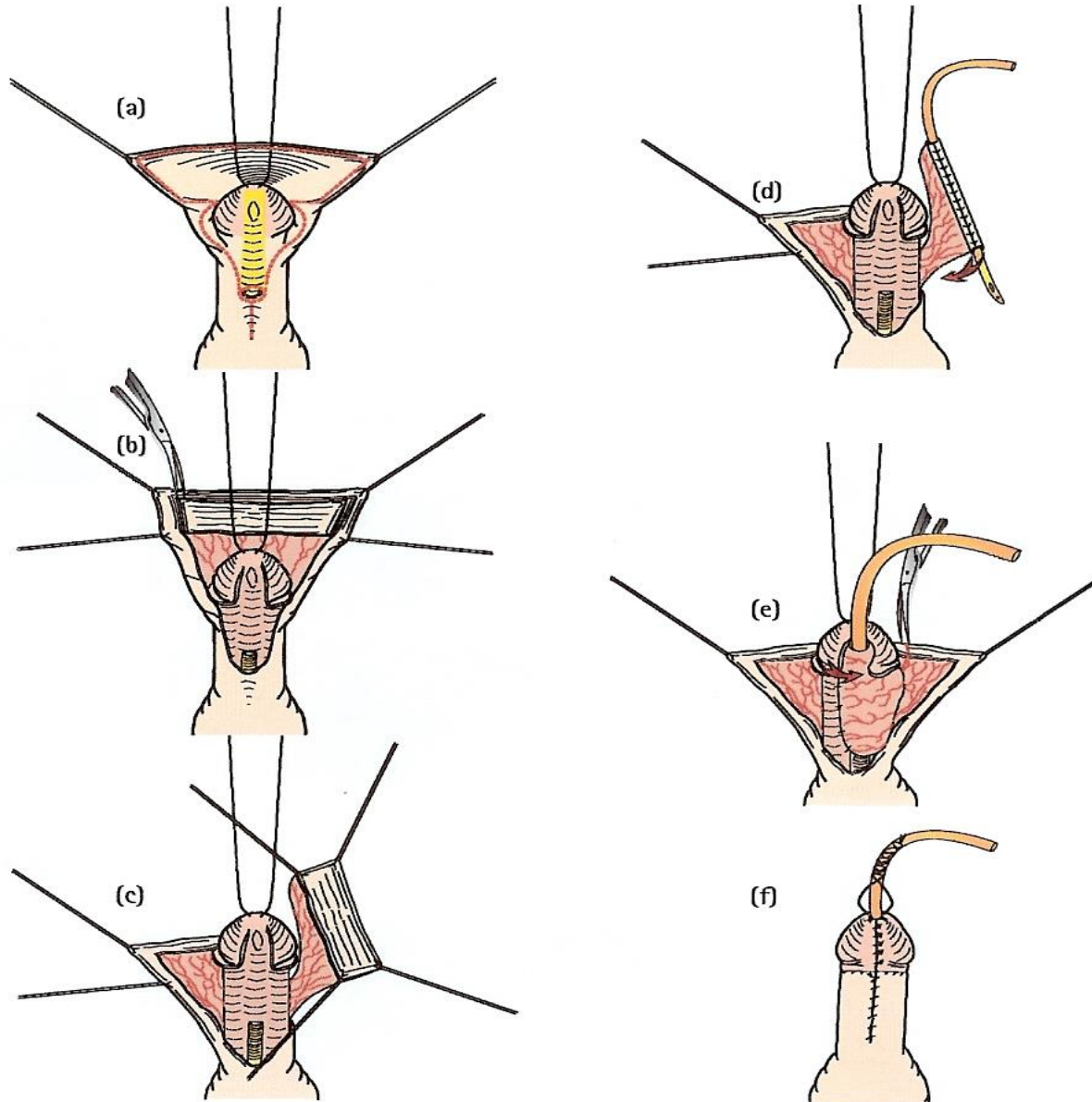
Island Flap

FIG. 9.
Onlay procedure.

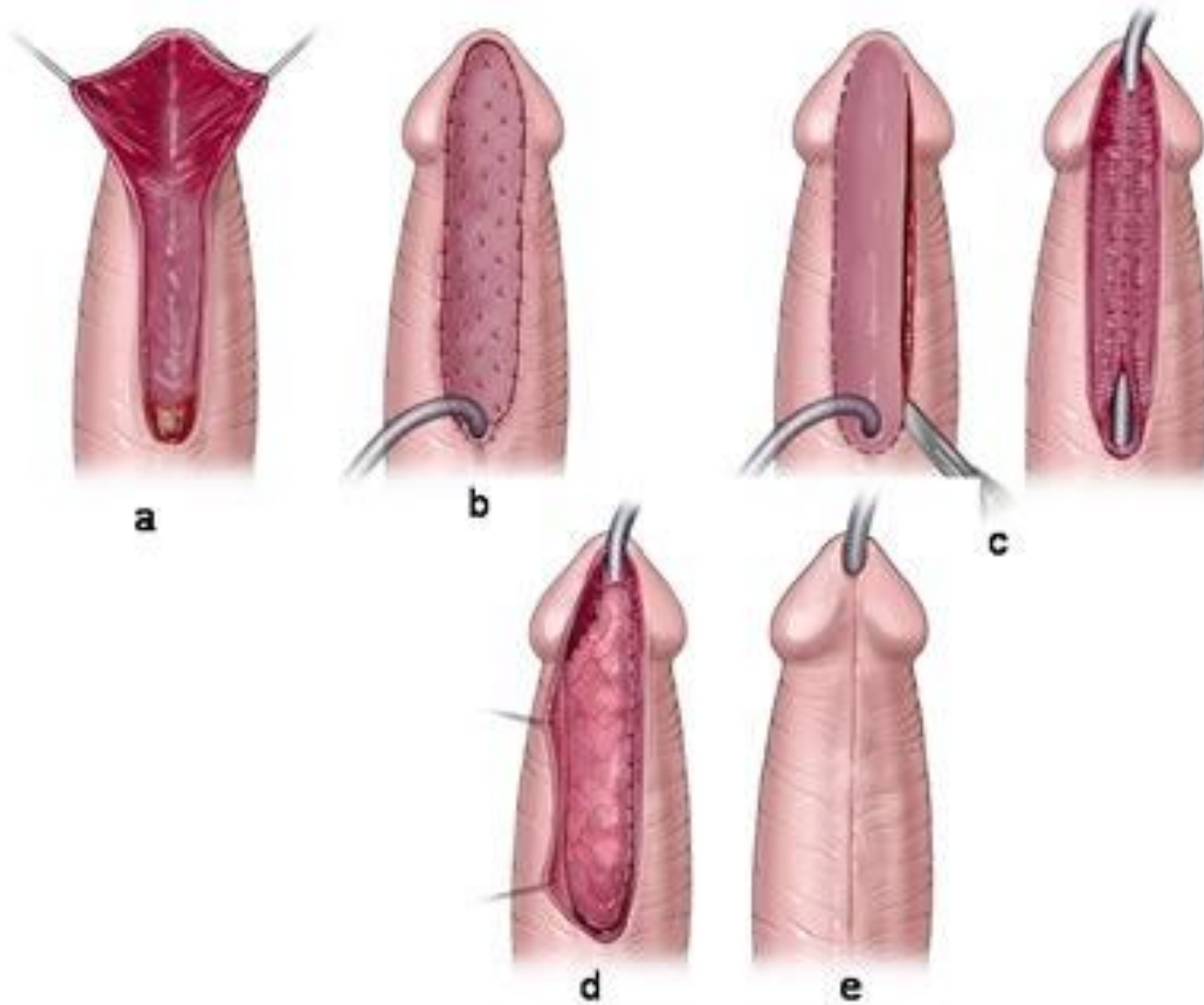


Tubularised flap

FIG. 12.
Asopa-Duckett procedure.



Bracka 2 stage



Penoscrotal







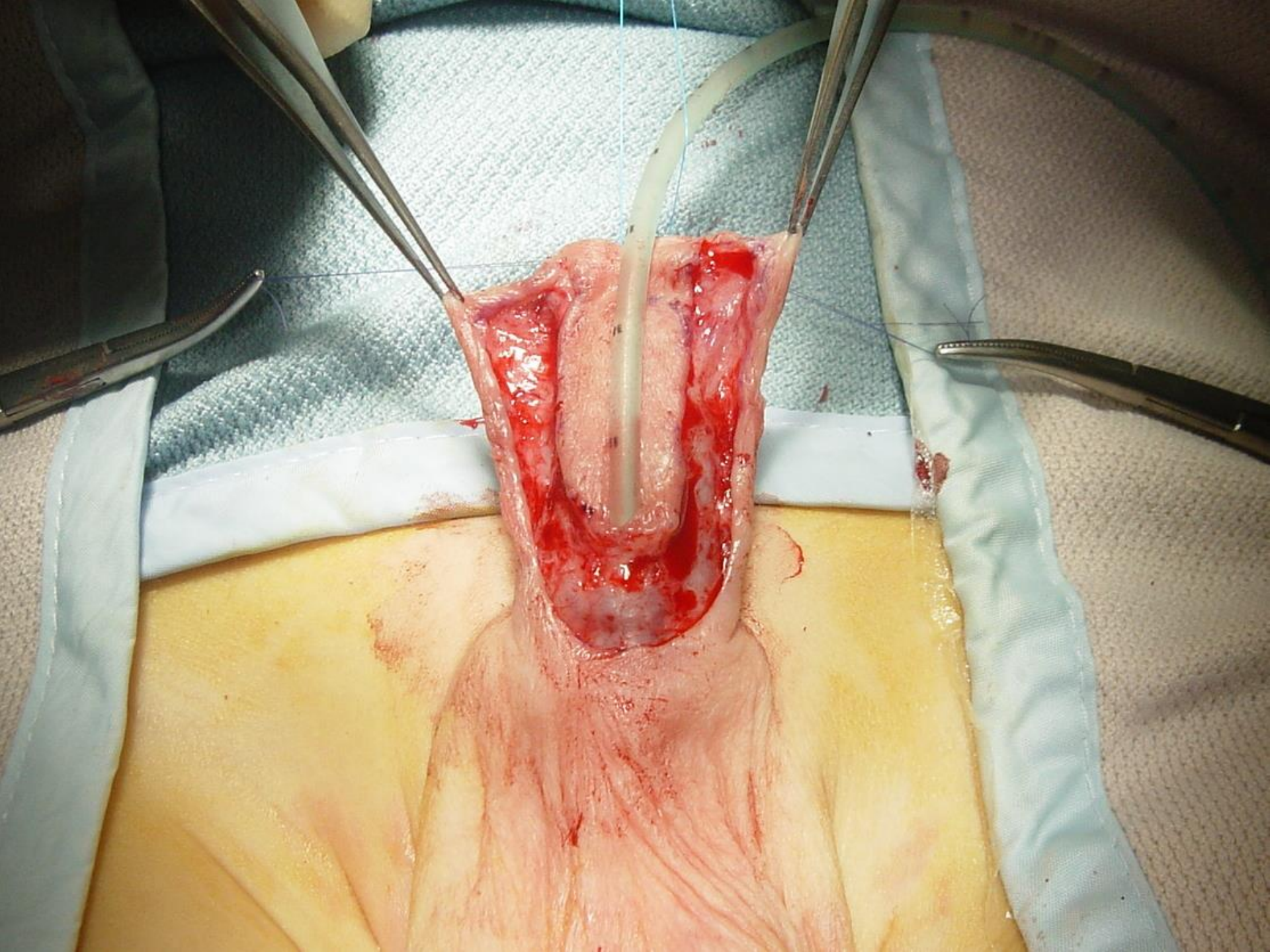




















Complications

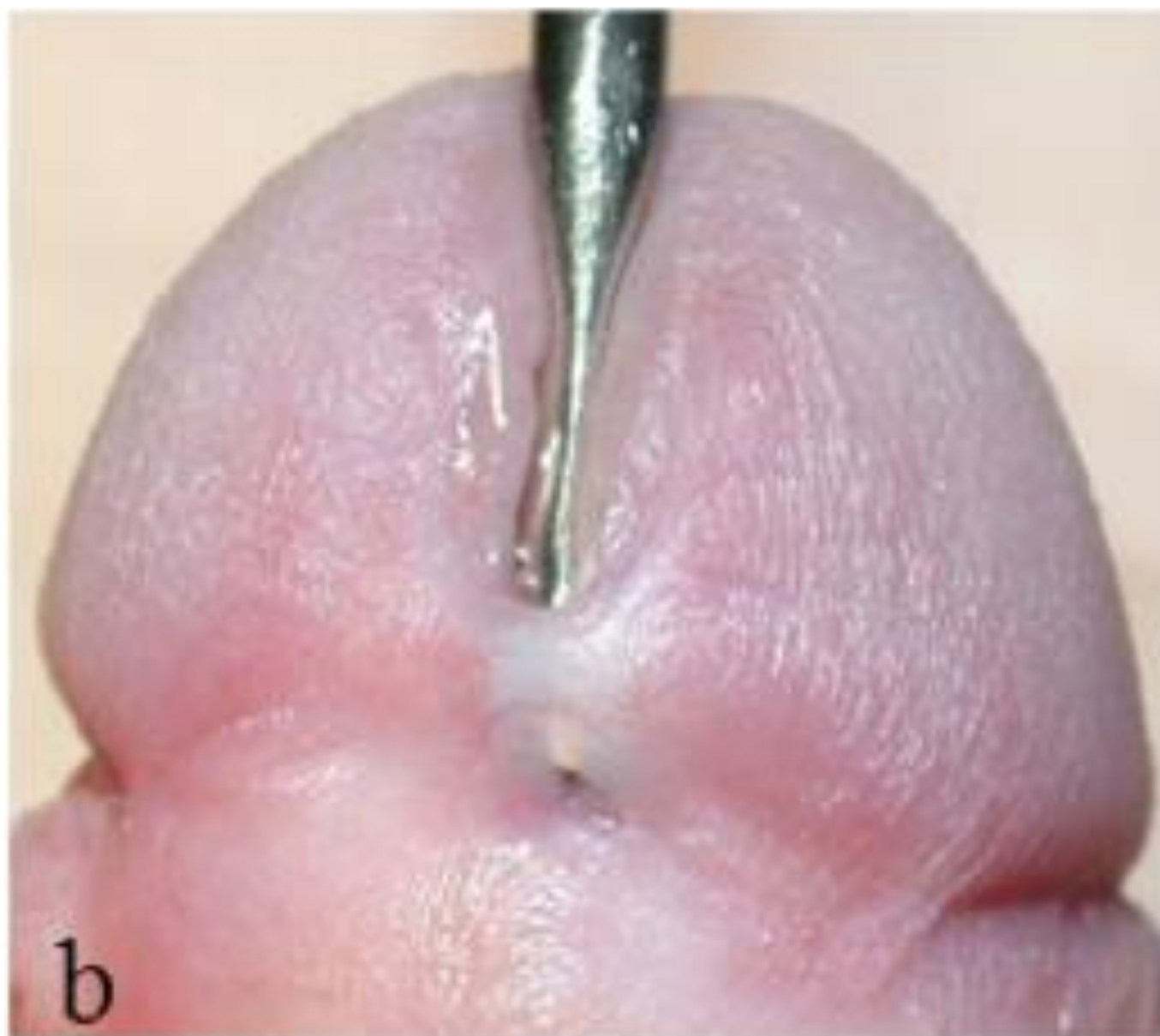
- Repair breakdown
- Urethrocutaneous fistula 10-15%
- Residual chordee
- Meatal stenosis..... } 20%
- Stricture } Think of BXO
- Splayed glans flaps

Complications

- Urethral diverticulum
- Penile torsion
- Hairy urethra
- Poor cosmesis
- Hypospadias 'cripples'
- Prostatic Utricle, Infections

- Complication rates higher for proximal cf distal
- Good data showing high volume centres have better results and lower complication rates
- Surgeons doing larger numbers have lower complication rates



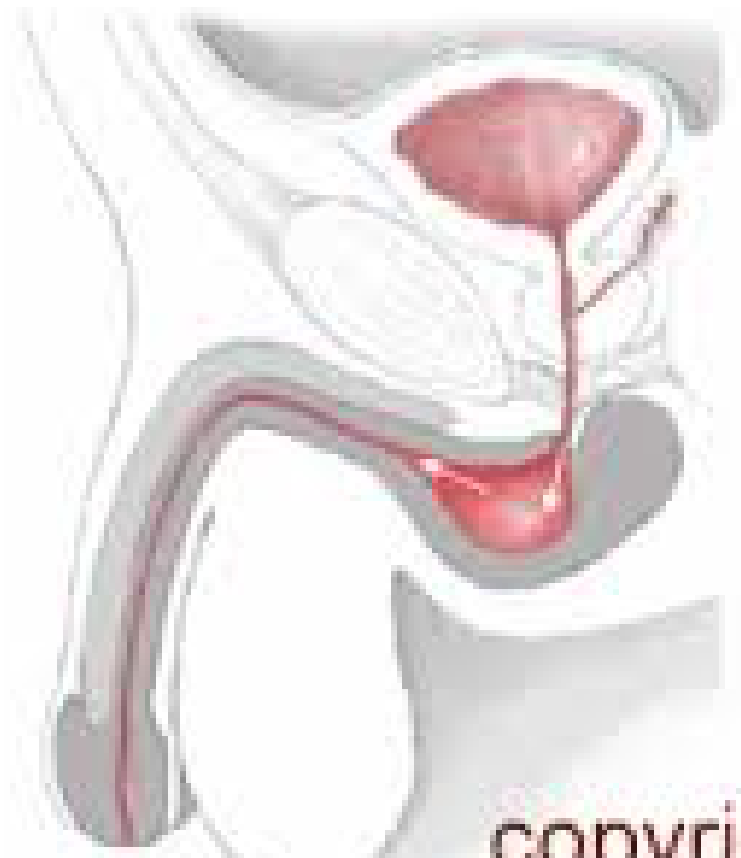














Follow-Up

- Long-term follow up important
- Education and awareness about issues to look out for
- Late fistulas and late strictures
- Urinary stream changes, difficulty voiding
- Second stream or drip
- Review at adolescence

